

1. A method of rendering a silhouette edge of a three-dimensional model, the method comprising:  
 detecting the silhouette edge; and  
 rendering the silhouette edge in a display format  
 5 that corresponds to a geometry of the three-dimensional model.

2. The method of claim 1, wherein rendering comprises:  
 determining an angle between the silhouette edge and  
 10 an adjacent silhouette edge; and  
 selecting the display format for the silhouette edge based on the angle.

3. The method of claim 2, further comprising displaying the silhouette edge in the display format.

15 4. The method of claim 3, wherein:  
 the display format comprises a texture map; and  
 displaying comprises performing texture mapping to generate the silhouette edge in the display format.

5. The method of claim 2, wherein the angle is determined based on the silhouette edge and the adjacent silhouette edge.

6. The method of claim 2, wherein determining  
5 comprises:  
determining a dot product of the silhouette edge and the adjacent silhouette edge; and  
determining an inverse cosine of the dot product to obtain the angle.

10 7. The method of claim 2, wherein a first display format is selected if an absolute value of the angle is less than a value, a second display format is selected if the absolute value of the angle is greater than the value and the angle is positive, and a third display format is  
15 selected if the absolute value of the angle is greater than ~~the value and the angle is negative.~~

8. A method of applying a texture map to render a silhouette edge, comprising:

20 determining a size of a texture map area based on an eyepoint vector to the silhouette edge; and

applying a texture map to the texture map area to render the silhouette edge.

9. The method of claim 8, wherein:

the texture map area has a width and a height; and

5 the size of the texture map area is determined so that the width is orthogonal to the eyepoint vector and to the height.

10. The method of claim 8, wherein the size of the texture map area is determined by:

10 constructing a normal vector relative to the silhouette edge;

determining a cross product of the normal vector and an eyepoint vector to determine a direction of a width of the texture map area; and

15 defining the texture map area based on points that are positioned relative to end points of the silhouette edge along the direction of the width.

11. The method of claim 8, wherein the texture map area is a quadrilateral.

12. An article comprising a computer-readable medium which stores computer-executable instructions for rendering a silhouette edge of a three-dimensional model, the instructions for causing a computer to:

5 detect the silhouette edge; and  
render the silhouette edge in a display format that corresponds to a geometry of the three-dimensional model.

13. The article of claim 12, wherein rendering comprises:

10 determining an angle between the silhouette edge and an adjacent silhouette edge; and  
selecting the display format for the silhouette edge based on the angle.

14. The article of claim 13, further comprising  
15 instructions that cause the computer to display the silhouette edge in the display format.

15. The article of claim 14, wherein:  
the display format comprises a texture map; and  
displaying comprises performing texture mapping to  
20 generate the silhouette edge in the display format.

16. The article of claim 13, wherein the angle is determined based on the silhouette edge and the adjacent silhouette edge.

17. The article of claim 13, wherein determining  
5 comprises:

determining a dot product of the silhouette edge and the adjacent silhouette edge; and

determining an inverse cosine of the dot product to obtain the angle.

18. The article of claim 13, wherein a first  
10 display format is selected if an absolute value of the angle is less than a value, a second display format is selected if the absolute value of the angle is greater than the value and the angle is positive, and a third display format is  
15 selected if the absolute value of the angle is greater than the value and the angle is negative.

19. An article comprising a computer-readable medium that stores computer-executable instructions for applying a texture map to render a silhouette edge, the  
20 instructions for causing a computer to:

determine a size of a texture map area based on an eyepoint vector to the silhouette edge; and

apply a texture map to the texture map area to render the silhouette edge.

5           20. The article of claim 19, wherein:  
the texture map area has a width and a height; and  
the size of the texture map area is determined so  
that the width is orthogonal to the eyepoint vector and to  
the height.

10           21. The article of claim 19, wherein the size of  
the texture map area is determined by:  
constructing a normal vector relative to the  
silhouette edge;  
determining a cross product of the normal vector and  
15 an eyepoint vector to determine a direction of a width of  
the texture map area; and  
defining the texture map area based on points that  
are positioned relative to end points of the silhouette edge  
along the direction of the width.

20           22. The article of claim 19, wherein the texture  
map area is a quadrilateral.

23. An article comprising a computer-readable medium that stores computer-executable instructions for rendering a two-dimensional cartoon image from data for a three-dimensional model, the instructions for causing a computer to:

render the three-dimensional model in a predetermined position;

detect silhouette edges on the three-dimensional model based on the data; and

render the silhouette edges in a display format that corresponds to a geometry of the three-dimensional model to produce the two-dimensional cartoon image.

24. The article of claim 23, wherein rendering of one of the silhouette edges comprises:

determining an angle between the silhouette edge and an adjacent silhouette edge; and

selecting the display format for the silhouette edge based on the angle.

25. The article of claim 23, wherein rendering of one of the silhouette edges comprises:

determining a size of a texture map area based on an eyepoint vector to the silhouette edge; and

applying a texture map to the texture map area to render the silhouette edge.

26. An apparatus for rendering a silhouette edge of a three-dimensional model, comprising:

5 a memory which stores computer instructions; and  
a processor which executes the computer instructions to (i) detect the silhouette edge; and (ii) render the silhouette edge in a display format that corresponds to a geometry of the three-dimensional model.

10 27. The apparatus of claim 26, wherein rendering comprises:

determining an angle between the silhouette edge and an adjacent silhouette edge; and

15 selecting the display format for the silhouette edge based on the angle.

28. The apparatus of claim 27, wherein determining comprises:

determining a dot product of the silhouette edge and the adjacent silhouette edges; and

20 determining an inverse cosine of the dot product to ~~obtain the angle.~~



29. An apparatus for applying a texture map to render a silhouette edge, comprising:

a memory which stores computer instructions; and

a processor which executes the computer instructions

5 to (i) determine a size of a texture map area based on an eyepoint vector to the silhouette edge, and (ii) to apply a texture map to the texture map area to render the silhouette edge.

30. The apparatus of claim 29, wherein the size of the texture map area is determined by:

constructing a normal vector relative to the silhouette edge;

10 determining a cross product of the normal vector and an eyepoint vector to determine a direction of a width of the texture map area; and

15 defining the texture map area based on points that are positioned relative to end points of the silhouette edge along the direction of the width.

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